REMARKS

The Office Action of July 5, 2006 has been carefully reviewed and amendments have been made to the claims as described below.

35 USC § 112

Claims 5, 8 and 16 have been amended to correct the antecedent basis problems noted by the Examiner. Claims 5 and 16 have had their dependency corrected to provide the necessary antecedent basis, and claim 8 has incorporated a description of the accelerometer into the body of the claim to correct the antecedent basis problem.

35 USC § 102

Claim 1 has been amended to incorporate the limitation of claim 9 into claim 1, and claim 9 has been canceled. This limitation of claim 9 relates to correcting the NMR signal at the local coil, and is similar to the limitations of claim 12, which also requires correcting the NMR signal before it is sent to the MRI machine.

Eviatar discloses a system that, like the present invention, detects patient motion and provides a motion signal that can be used to correct the MRI image. At paragraph [0136], as noted by the Examiner, Eviatar describes sending motion information to the pulse programmer to modify the next gradient pulse sequence and to correct the image online. The pulse programmer, as described in paragraph [0139], is in the MRI console. See also paragraph [0137].

In contrast, the present invention, per the claims as amended, corrects the NMR signal from the patient, not the pulse sequence from the MRI machine used to create the NMR sequence. Independent claims 1 and 12 now expressly require that the local coil include a processor correcting the NMR signal. Eviatar neither corrects the NMR signal, nor is the correction done in a local coil.

The importance of this distinction can be found in the fact that a local coil is intended to be added to a pre-existing MRI machine as an add-on device. The manufacturer of the local coil normally does not have access to the internal and proprietary systems that control pulse sequences from the MRI machine, nor is a universal connection of this type provided to the owner of the MRI machine. The present inventors have determined, however, that the NMR signal may be corrected at the local coil, for example, by the simple expedient of zeroing out the data when motion is occurring or shifting the phase of this signal. This is described with respect

to Fig. 3, and particularly claimed at claims 10 and 11 of the present application. The MRI machines do provide a connection for the NMR signal and so coils of the design of the present invention can be easily installed on any MRI machine. This ability to provide for correction of motion without access to the pulses of the MRI machine itself, and, in some cases, without precise quantitative information about the motion, makes possible a local coil having improved motion artifact resistance.

The Eviatar application teaches away from the possibility of providing a local coil incorporating motion correction, not only by describing a system that requires access to the MRI console, but also by showing a system that must be placed outside of the bore of the magnet and that could not be placed in the local coil. Eviatar thus teaches away from the present invention of a local coil having integral motion detection and correction. A person reviewing Eviatar or any other references would not know how to effect onboard correction, and thus would not be led to incorporate motion correction into a local coil itself.

In light of these remarks and amendments, it is believed that claims 1-8 and 10-18 are now in condition for allowance and allowance is respectfully requested. The Examiner is encouraged to contact the undersigned if minor amendments are needed in the figures, specification, or claims to bring this case into allowance.

Very truly yours,

DEREK SEEBER

By: _____

Keith M. Baxter
Reg. No. 31,233
Attorney for Applicant
Boyle Fredrickson Newholm Stein & Gratz, S.C.
250 East Wisconsin Avenue, Suite 1030
Milwaukee, WI 53202